

### AMENDMENT TO THE CLAIMS

Please **AMEND** claims 1-21 as follows.

A copy of all pending claims and a status of each claim is provided below.

1. (currently amended) A method for machining a workpiece made from a titanium-based alloy, comprising ~~the following steps:~~

- a) heating of the workpiece in a hydrogen-containing atmosphere, ~~during which step wherein~~ the workpiece takes up hydrogen;
- b) cooling of the workpiece;
- c) metal-removing machining of the workpiece;
- d) heating of the workpiece in a hydrogen-free atmosphere, ~~during which step wherein~~ hydrogen is released.

2. (currently amended) The method as claimed in claim 1, ~~characterized in that wherein~~ the workpiece is heated in ~~vacuo~~ a vacuum in order for hydrogen to be released.

3. (currently amended) The method as claimed in claim 1, ~~characterized in that wherein~~ the workpiece is heated to approximately 973 K for hydrogen to be taken up.

4. (currently amended) The method as claimed in claim 1, ~~characterized in that wherein~~ the hydrogen-containing atmosphere is under a pressure of approximately  $5 \cdot 10^3$  Pa.

5. (currently amended) The method as claimed in ~~one or more of the preceding claims, characterized in that claim 1, wherein an~~ the annealing time in the hydrogen-containing atmosphere is at least 2 hours.

6. (currently amended) The method as claimed in claim 1, ~~characterized in that wherein~~ the workpiece is cooled in the hydrogen-containing atmosphere.

7. (currently amended) The method as claimed in claim 1, ~~characterized in that 2,~~  
wherein the vacuum is at least  $2 \cdot 10^{-3}$  Pa.

8. (currently amended) The method as claimed in claim 1 ~~or 2, characterized in~~  
~~that~~ wherein an the annealing temperature in the hydrogen-free atmosphere, ~~in~~  
~~particular in the vacuum,~~ is at least 773 K.

9. (currently amended) The method as claimed in claim 1 ~~or 8, characterized in~~  
~~that~~ wherein the heating is carried out inductively.

10. (currently amended) The method as claimed in ~~one or more of the preceding~~  
~~claims, characterized in that~~ claim 1, wherein a the hydrogen concentration in the  
workpiece after cooling is less than 1.5% by weight in titanium.

11. (currently amended) The method as claimed in claim 10, ~~characterized in that~~  
wherein the hydrogen concentration is 0.5% by weight.

12. (currently amended) The method as claimed in claim 1, ~~characterized in that~~  
wherein at least one of surface oxides ~~and/or and~~ further covering layers are removed  
from the workpiece, ~~at least in regions,~~ prior to the heating.

13. (currently amended) The method as claimed in claim 12, ~~characterized in that~~  
wherein the at least one of surface oxides ~~and/or and~~ further covering layers are  
removed by ~~means of~~ an etching solution.

14. (currently amended) The method as claimed in claim 13, ~~characterized in that~~  
wherein the etching solution ~~used~~ is a mixture ~~consisting of~~ comprising  $H_2O$ ,  $HNO_3$ ,  $HF$   
and  $H_2O_2$ .

15. (currently amended) The method as claimed in claim 14, ~~characterized in that~~  
wherein the etching solution ~~used~~ is a mixture of 50 ml of H<sub>2</sub>O, 50 ml of HNO<sub>3</sub>, and  
10 ml of ~~the~~ a solution of [12 ml of HF + 70 ml of H<sub>2</sub>O<sub>2</sub>].

16. (currently amended) A workpiece for use in the method as claimed in ~~one or~~  
~~more of the preceding claims, consisting of~~ claim 1, comprising TiAl6V4.

17. (currently amended) The workpiece as claimed in claim 16, ~~characterized in~~  
~~that~~ wherein lanthanum is admixed with the alloy TiAl6V4.

18. (currently amended) The workpiece as claimed in claim 17, ~~characterized in~~  
~~that the~~ wherein a lanthanum content amounts to 0.3 - 3 atomic%.

19. (currently amended) The workpiece as claimed in claim 16, ~~characterized in~~  
~~that~~ wherein cerium is admixed with the alloy TiAl6V4.

20. (currently amended) The workpiece as claimed in claim 19, ~~characterized in~~  
~~that the~~ wherein a cerium content is less than 3 atomic%.

21. (currently amended) An alloy for producing a workpiece made from a  
titanium-based alloy, ~~characterized by~~ comprising a lanthanum content of 0.3 –  
3 atomic%.